HEAT STRESS

THIS CAN BE ACCOMPLISHED THROUGH:

- Engineering Controls
- Administrative Controls
- Personal Protective Equipment
- Training

TRAINING OVERVIEW

- Heat Stress Defined
- Body's Cooling System
- Cause, Symptoms, and First Aid
- Prevention/Controls
- Related Factors
- Assessment of Environmental Conditions
- Medical Surveillance

Heat Stress:

is the combination of *environmental* and *physical* work factors that constitute the total heat load imposed on your body.

Occupations at risk: laborers, military, farmers, cooks in hot kitchens, workers in boiler rooms and factories, seamen in engine rooms, athletes, lawn maintenance workers, a/c repairmen, etc.

BODY'S COOLING SYSTEM

Blood is pumped close to skin for cooling,
reduces blood going to the brain and rest of your bod

As temperature rise, surface blood vessels get bigger
and pulse rate goes up.

As temperatures rise in air and surrounding equipment
through convection, conduction, and radiation your body
gains heat instead of losing it.

BODY' COOLING SYSTEM - CONT.

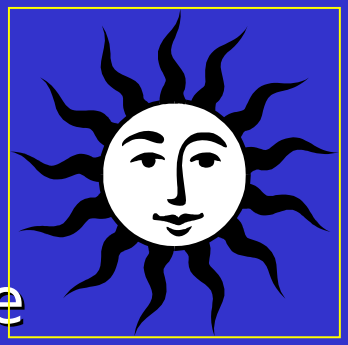
Evaporation of sweat is how your body cools itself.

But by sweating - you lose fluids and minerals.

Most people lose about a quart of sweat/hr in extreme heat.

This adds a strain to your circulatory system which now has a lower amount of blood in your body.

SUNBURN



Degree of Hazard - Minor to Moderate

Cause - Exposure of unprotected skin to UV light

Symptoms - First degree burns: red, painful skin
Second degree: blistering and/or peeling

First Aid - Skin lotions, topical anesthetics, relocate to shade.

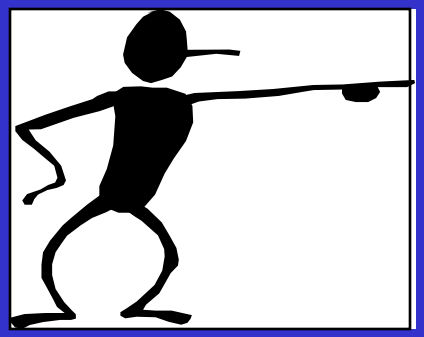
Heat Syncope

Degree of Hazard - Minimal

Cause - Pooling of blood in the legs/skin from prolong
static posture and heat exposure

Symptoms - Blurred vision (grey-out), fainting (brief
blackout), normal temperature

First Aid - Lie on back in cool environment, drink water



Heat Rash

(Prickly Heat)

Degree of Hazard - Minimal

Cause - Constant exposure to hot/humid air

Symptoms - Pink pimples, intense itching, tingling

First Aid - Cleanse area, dry thoroughly, apply calam
or other soothing lotion to relieve discom
could result in infection if left untreated

Heat Cramps

Degree of Hazard - Minor

Cause - Prolonged exposure to heat, excessive loss of salt through profuse sweating

Symptoms - Painful intermittent spasms of the abdomen and other voluntary muscles, body temperature normal or below normal, may occur during or *after* working hours

First Aid - Rest & drink plenty of water/electrolyte drink

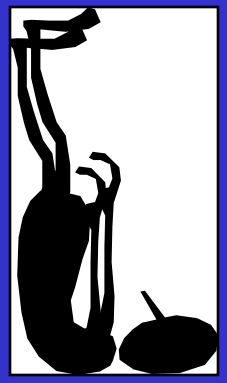
Dehydration

Degree of Hazard - Moderate

Cause - Excessive fluid loss caused by sweating, illness (vomiting or diarrhea), alcohol consumption

Symptoms - No early symptoms, fatigue, weakness, dry mouth

First Aid - Fluid and salt replacement (with food)



Heat Exhaustion

Degree of Hazard -
Moderate

Cause - Physical exertion in hot environment, dehydration

Competing demands for blood flow to skin and active muscles

Symptoms - Profuse sweating, weakness, pallor, rapid pulse, dizziness, nausea, headache, vomiting, rise in body temperature, unconsciousness, skin cool/clammy with sweat

First Aid - Rest in shade/cool place & drink plenty of water.

Heat Stroke

Degree of Hazard -
Serious

Cause - Prolonged exposure to high temperature results in failure to regulate body temperature

Symptoms - Dryness of mouth, sweating is diminished or absent, skin hot and dry,skin may be red or splotchy, high body temperature, untreated may result in delirium, chills, convulsions, coma and even death

First Aid - Douse body continuously with cool liquid. Don't give person anything to drink - they could inhale vomit into lungs. Summon medical aid immediately!

Prevention

Acclimatization - Usually takes one to two weeks

Conditioning - Physically fit person has a lower heart

Lower body temperature

More efficient sweating mechanism

Hydration - Consume fluids before, during, and after job

Do not wait until your thirsty to drink water

Air Movement - Under certain conditions

Prevention

Training - Self determination: Workers need to know how to recognize and prevent heat stress

Proper Clothing - Wear light color clothing, change wet to dry clothing when possible

Eat Properly - Eat light meals during work
Save your heaviest meal for after work

Related Factors - Heat Stress

Age - over 40

Gender - aerobic capacity

Body Fat - insulative barrier

Drugs/Alcohol - dehydrate the body

Previous Occurrence of Heat Stroke - heat tolerance

Illness/Immunization - affect heat tolerance

Higher Frequency of Injury/Illness -

Direct Causes: Fogged glasses
Sweat in eyes
Slippery hands
Dizziness or fainting

Indirect Causes: Physical discomfort
Irritability and anger
Poor judgement
Diverting attention from job
Slower mental/physical job reactio

Assessment of Environmental Conditions

WBGT - Combination temperature of dry air, relative humidity and radiant heating.

Heat Index - National Weather Service public alert combination of heat and humidity

Assessment of Environmental Conditions

Personal Monitor - Device monitors a worker

Core temperature and pulse rate

Medical Surveillance

- Evaluation of individual risk

- Preplacement/Periodic physicals

- Physician's written opinion with copy to the indivi
  and copy placed in medical records